

REMARKS

I. Status of the Application

Claims 18 and 20-37 are pending in this application. In the March 12, 2009 office action, the Examiner:

- A. Rejected claims 18 and 20-37 under 35 U.S.C. § 103(a) as being unpatentable over US 7,289,502 to Gemelli et al. (hereinafter “Gemelli”) in view of US Pub 2003/0081554 to Huang et al. (hereinafter “Huang”);
- B. Rejected claims 21 and 33 under 35 U.S.C. § 103(a) as being unpatentable over Gemelli et al. in view of Huang et al. in further view of US 6,026,198 to Okada et al.;
- C. Rejected claim 29 under 35 U.S.C. § 103(a) as being unpatentable over Gemelli et al. in view of Huang et al. and further in view of US 6,094,431 to Yamato et al.; and
- D. Rejected claims 22 and 34 under 35 U.S.C. § 103(a) as being unpatentable over Gemelli et al. in view of Huang et al. in further view of US Pub 2003/0222996 to Patej et al.

In this response, applicants respectfully traverse the examiner’s rejection of claims 18 and 20-37 in view of the following remarks.

II. The Rejection of Independent Claims 18, 30 and 36 Should be Withdrawn

In the August 4, 2008 Office action, the examiner rejected each of independent claims 18, 30 and 36 under 35 U.S.C. § 103(a) as allegedly being obvious and unpatentable over Gemelli in view of Huang. Applicants respectfully traverse the examiner’s rejection of

independent claims 18, 30 and 36 as the examiner has failed to make a *prima facie* case of obviousness under MPEP § 2143.

in order to establish a *prima facie* case of obviousness, three basic criteria should be met as set forth in MPEP § 2143.01-2143.03. First, all claim limitations must be considered. MPEP § 2143.03. Second, there must be some suggestion or motivation to modify the references or combine reference teachings. MPEP § 2143.01. Third, there must be a reasonable expectation of success. MPEP § 2143.02.

A. The Combination of References Does Not Arrive at the Claimed Invention

In order to establish a *prima facie* case of obviousness, under MPEP § 2143.03, all claim limitations must be considered. MPEP § 2143.03. In the present case, it is respectfully submitted that neither Gemelli nor Huang teach or suggest all the limitations of amended claims 18, and therefore, the combination of Gemelli and Huang does not arrive at the claimed invention.

As set forth in claim 18, a process of routing data packets comprises (a) extracting a destination address identifier from a data packet to be forwarded, (b) compressing the destination address identifier using a compression algorithm, (c) *comparing* the compressed destination address identifier with forwarding addresses available for routing, *which forwarding addresses have been compressed using the compression algorithm* and stored as entries of a routing table, and (d) if a positive comparison between the compressed destination address identifier and an entry stored in the routing table is found, switching the data packet to an output link associated with the forwarding address corresponding to the entry. Related limitations are also found in claims 30 and 36.

As can be seen from the foregoing, claims 18, 30 and 36 include the concept of compressing the destination address identifier. In addition, compressed forwarding addresses are stored as entries of a routing table. These forwarding addresses have been *compressed using the same compression algorithm as used for compressing the destination address identifier*. In order to find a correspondence between the destination address identifier and an entry of the routing table, the compressed destination address identifier is *compared* to the compressed forwarding address. In other words, **the destination address identifier extracted from the data packet and the forwarding addresses stored in the routing table are both subjected to the same compression algorithm and then compared to each other.**

1. *comparing the compressed destination address identifier with forwarding addresses available for routing*

Applicant respectfully submits that neither Gemelli nor Huang teach the limitation of “comparing the compressed destination address identifier with forwarding addresses available for routing” as set forth in independent claim 18. Still, at page 12 of the March 12, 2009 Final Office Action, the examiner maintains the position that the combination of Gemelli and Huang teach a comparison between a compressed destination address identifier and compressed forwarding addresses so as to find a correspondence between the destination address and an entry of the routing table. In this respect, the examiner refers to col. 1, lines 52-57 of Gemelli, which describes that the network prefix contained in an IP address should be considered in order to search in a forwarding table using the network prefix as its key. However, applicants respectfully note that this passage of Gemelli simply does not refer to a

“comparison”, and particularly a comparison between a compressed destination address and compressed forwarding addresses. Instead, this passage of Gemelli only generally refers to searching in the forwarding table using the network prefix as a key. As noted at page 11 of applicant’s November 4, 2008 Response, a search is not the same as a comparison. Gemelli leaves open in which way the search is to be carried out. In fact, the act of carrying out a search using a key does not require that the key is *compared* to other entities. Indeed, it is possible to use any search procedures, such as Hashing-based techniques, which avoid any comparison between the key and other entities. Accordingly, Gemelli does not teach a search which involves *comparing* the network prefix to other entities, but instead merely refers to the result of a search procedure which is the best matching routing address (see, e.g., column 7, lines 50-52 of Gemelli).

While the foregoing argument that “searching” is not equivalent to “comparing” was made in applicants’ November 4, 2009 Office action, the examiner did not address this argument in the March 12, 2009 Final Office Action. Instead, at page 12 of the March 12, 2009 Office action, the examiner continued to equate the “search” reference at col. 1, lines 53-57 of Gemelli with a “comparison”. Thus, because examiner has not addressed applicants’ argument that “searching” is not equivalent to “comparing”, it is respectfully submitted that the finality of the March 12, 2009 Final Office Action is improper. In particular, as set forth in MPEP § 706.07, “In making the final rejection, all outstanding grounds of rejection of record *should be carefully reviewed*, and any such grounds relied on in the final rejection should be reiterated. *They must also be clearly developed to such an extent that applicant may readily judge the advisability of an appeal.*” (Emphasis added). In the present case,

because the examiner has not addressed applicant's arguments with respect to the distinctions between "searching" and "comparing", a clear issue has not been developed, and applicant can not judge the advisability of an appeal.

As set forth above, it is respectfully submitted that Gemelli does not teach the limitation of independent claim 18 of "comparing the compressed destination address identifier with forwarding addresses available for routing", or related limitations of independent claims 30 and 36. Furthermore, the examiner has not addressed applicants' arguments with respect to this limitation in the March 12, 2009 Final Office Action. Accordingly, applicants respectfully submit that the final rejection of independent claims 18, 30 and 36 in the March 12, 2009 Final Office Action should be withdrawn.

2. which forwarding addresses have been compressed using the compression algorithm and stored as entries of a routing table

In the March 12, 2009 Final Office Action, the examiner admitted that Gemelli fails to teach that the forwarding addresses have been compressed using the compression algorithm and stored as entries of a routing table (see p. 4, lines 8-10 of the March 12, 2009 Final Office Action). However, the examiner then argued that Huang teaches this limitation. Applicants respectfully submit that neither Huang, nor a combination of Gemelli and Huang, arrive at the limitations of claim 18 including "comparing the compressed destination address identifier with forwarding addresses available for routing, *which forwarding addresses have been compressed using the compression algorithm and stored as entries of a routing table*".

Huang teaches a compression bitmap method by means of which a forwarding table occupies less memory. The compression bitmap method is illustrated in Figs. 2a and 2b of Huang. As explained in more detail in paragraph [0007] of Huang, the compression bitmap method involves separating the forwarding table into different ranges and merely storing whether a network address corresponds to a starting point of a range. However, this method is not applied for compressing a *single* forwarding address. Rather, this method can only be applied to the *overall structure of the forwarding table*. In other words, according to Huang, compression of the forwarding table is obtained by making a selection of specific forwarding addresses, i.e., network addresses corresponding to a starting point of a range. This concept cannot be applied in order to obtain compression of a single forwarding address or a single destination address. In particular, this method of Huang can not be used in such a way that the compressed destination address and the compressed forwarding address can be compared to each other in order to find a correspondence.

In view of the above, even when combining the teachings of Gemelli and Huang, one skilled in the art would not have arrived at a routing method or device in which a compressed destination address is compared to the forwarding addresses which have been compressed according to the same compression algorithm and stored as entries of a routing table. This is particularly apparent from the fact that the compression bitmap method as described by Huang can only be applied to a forwarding table as a whole, but not to a single network address.

Similar arguments related to the foregoing were made at pages 12-13 of applicants' November 4, 2008 Response to Office Action (and particularly at 13-17). However, in the March 12, 2009 Final Office Action, the examiner did not address applicants' position that

Huang merely teaches compression of the forwarding table by making a selection of specific forwarding addresses, i.e., network addresses corresponding to a starting point of a range. Accordingly, the concept of Huang cannot be applied in order to obtain compression of a single forwarding address or a single destination address. Because the examiner has not addressed this position, it is respectfully submitted that the final rejection of March 12, 2009 is improper.

As set forth above, it is respectfully submitted that neither Gemelli nor Huang, alone or in combination teach the limitation of independent claim 18 of “comparing the compressed destination address identifier with forwarding addresses available for routing, *which forwarding addresses have been compressed using the compression algorithm* and stored as entries of a routing table”, or related limitations of independent claims 30 and 36. Accordingly, applicants respectfully submit that the final rejection of independent claims 18, 30 and 36 in the March 12, 2009 Final Office Action should be withdrawn.

B. There is no Motivation to Combine Gemelli and Huang

The mere fact that references can be combined or modified does not render the resultant combination obvious unless “there is some teaching, suggestion or motivation” to combine the references. MPEP § 2143.01. In addition, when the prior art teaches away from the claimed invention, there is a suggestion of a lack of *prima facie* obviousness. See In re Fine, 873 F. 2d 1071 (Fed. Cir. 1988); MPEP § 2145. Thus, a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. MPEP § 2141.02.

Applicants respectfully submit that, even if Gemelli and Huang could be combined, Huang reference actually *teaches away* from the claimed invention. Claim 18 calls for “comparing the compressed destination address identifier with forwarding addresses available for routing, *which forwarding addresses have been compressed using the compression algorithm* and stored as entries of a routing table”. Accordingly, claim 18 involves compressing single destination addresses and single forwarding addresses according the same algorithm. On the other hand, Huang teaches that the compression bitmap method involves separating the forwarding table into different ranges and to merely store whether a network address corresponds to a starting point of a range (see paragraph [0007] of Huang). However, this method is not applied for compressing a *single* forwarding address. Rather, this method can only be applied to the *overall structure of the forwarding table*. In other words, according to Huang, compression of the forwarding table is obtained by making a selection of specific forwarding addresses, i.e., network addresses corresponding to a starting point of a range. This concept cannot be applied in order to obtain compression of a single forwarding address or a single destination address. In particular, this method of Huang can not be used in such a way that the compressed destination address and the compressed forwarding address can be compared to each other in order to find a correspondence. Thus, when Huang is considered as a whole it can be seen that Huang actually *teaches away* from the claimed invention. Accordingly, not only does the combination of Gemelli and Huang not arrive at the claimed invention, there is no motivation to combine Gemelli and Huang in the manner suggested by the examiner since Huang teaches away from the claimed invention.

For at least the reason set forth above, it is respectfully submitted that the examiner has not made a prima facie case of obviousness. Accordingly, it is respectfully submitted that the examiner's rejection of claims 18, 30 and 36 under 35 U.S.C. § 103(a) should be withdrawn.

C. A Reasonable Expectation of Success Has Not Been Established

In order to establish a prima facie case of obviousness, the examiner must at least articulate a finding that there was reasonable expectation of success. See MPEP § 2143(A)-(G) and MPEP § 2143.02. However, in the March 12, 2009 Final Office Action, the examiner did not even attempt to establish such a finding of a reasonable expectation of success. Therefore, for at least this reason, the examiner has not made a prima facie case of obviousness, and the examiner's rejection under 35 U.S.C. § 103(a) should be withdrawn.

III. The Rejection of Dependent Claims 20-29, 31-35 and 37 Should be Withdrawn

In the March 12, 2008 Final Office Action, the examiner rejected each of dependent claims 20-29, 31-35 and 37 under 35 U.S.C. § 103(a). Dependent claims 20-29, 31-35 and 37 all depend from and incorporate all the limitations of one of independent claims 18, 30 or 36. Moreover, each of these dependent claims includes additional novel and non-obvious limitations. Accordingly, it is respectfully submitted that dependent claims 20-29, 31-35 and 37 are also allowable for at least the same reasons that independent claims 18, 30 and 36 are allowable, as well as additional reasons. Therefore, the examiner's rejection of claims 20-29, 31-35 and 37 should be withdrawn.

IV. Conclusion

For all of the foregoing reasons, it is respectfully submitted the applicant has made a patentable contribution to the art. Favorable reconsideration and allowance of this application is therefore respectfully requested.

In the event applicant has inadvertently overlooked the need for an extension of time or payment of an additional fee, the applicant conditionally petitions therefore, and authorizes any fee deficiency to be charged to deposit account 13-0014.

Respectfully submitted,

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